

Presented at the
Armed Forces Radiobiology Research Institute
Scientific Medical Effects of Ionizing Radiation Course
July 28 through August 1, 2008
Bethesda, Maryland

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<http://www.afrrri.usuhs.mil>

The Scientific Medical Effects of Ionizing Radiation Course, conducted once a year, focuses on the latest research about the medical effects of ionizing radiation to help clinicians, health physicists, and medical planners preserve troop health in the face of radiological/nuclear terrorism or warfare.

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Medical Operations in a Contaminated Environment

Medical Effects of Ionizing Radiation Scientific Update 28 July 2008

***CAPT Jeffrey W. Timby, MC, USN
Command Surgeon***

JOINT TASK FORCE CIVIL SUPPORT



To Serve and Support



Purpose

- **Provide an overview of Joint Task Force Civil Support (JTF-CS)**
- **Discuss the role of JTF-CS in response to a nuclear or radiological emergency**
- **Discuss the JTF-CS medical concept of operations**
- **Discuss operational risk management**



What is JTF-CS?

- A USNORTHCOM standing Joint Task Force HQ of Joint military, DOD civilian and contractor personnel at Fort Monroe, Virginia.
- Originally established under USJFCOM (pre-9/11) to address national level concerns for planning and integration of DOD CBRNE Consequence Management (CM) support to civil authorities.
- A deployable Command and Control headquarters for DOD units and personnel executing CM operations in response to one or more CBRNE incidents.



Geographical Combatant Command



The President



Secretary of Defense



U.S. Coast Guard



National Guard Bureau

STANDING JOINT FORCE HEADQUARTERS - NORTH

JOINT TASK FORCE ALASKA



JOINT FORCE HEADQUARTERS NATIONAL CAPITAL REGION



JOINT TASK FORCE CIVIL SUPPORT



JOINT TASK FORCE NORTH

ARNORTH JFLCC



AFNORTH JFACC



MARFORNORTH



FLEET FORCES COMMAND JFMCC



Relationships

- Coordinating
- COCOM/OPCON
- - Supported/Supporting



OPCON TACON



USNORTHCOM Mission Statement

**USNORTHCOM anticipates and conducts
Homeland Defense and Civil Support operations
within the assigned area of responsibility
to defend, protect, and secure the United States and
its interests**





US JOINT FORCE LAND COMPONENT COMMANDER Mission Statement

- **US Army North (USARNORTH), as the Joint Force Land Component Command (JFLCC) and the Army Service Component Command (ASCC) to US Northern Command, conducts Homeland Defense (HD), Civil Support (CS) operations and Theater Security Cooperation (TSC) activities in order to protect the American people and our way of life.**

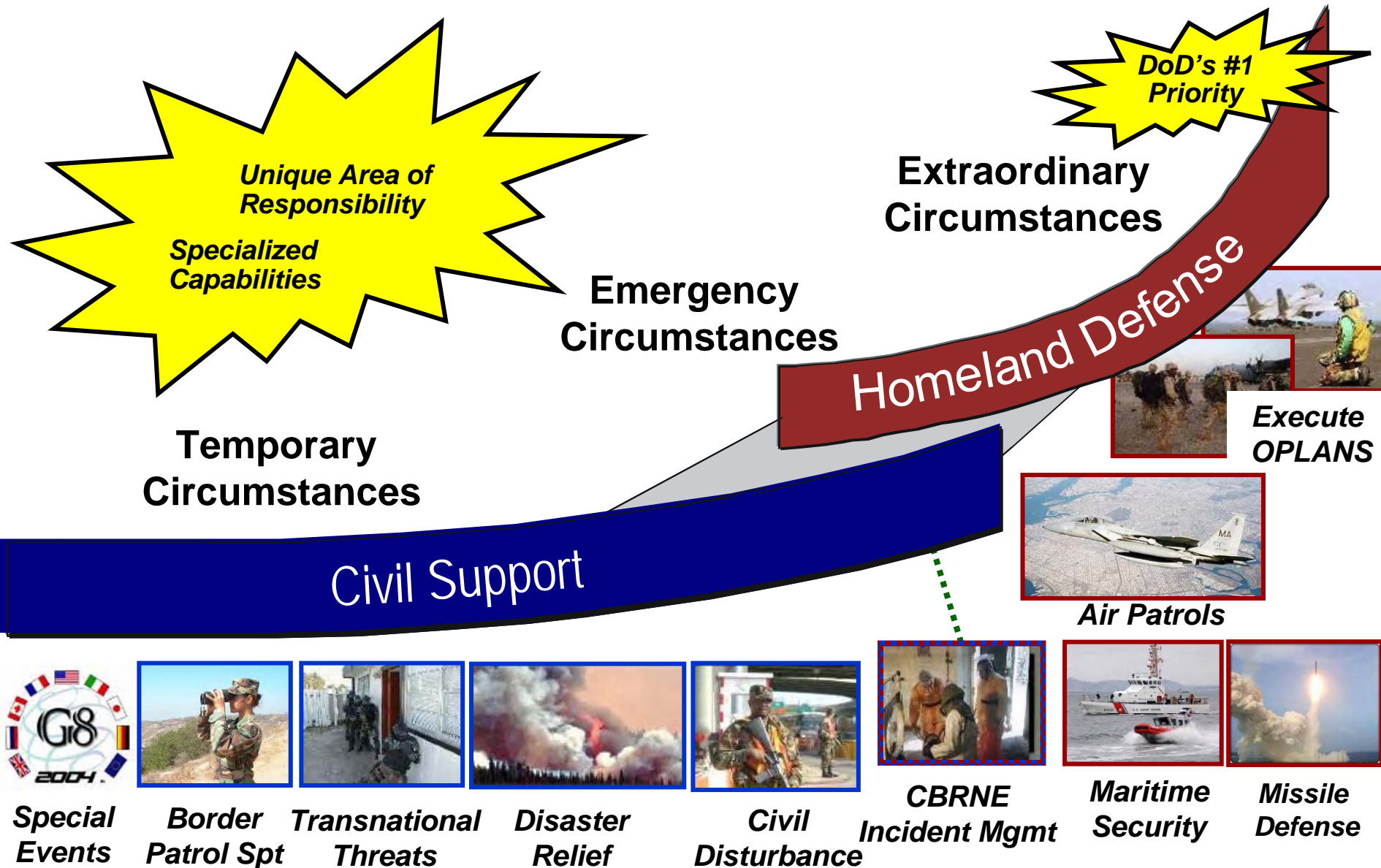


JTF-CS anticipates, plans and integrates USNORTHCOM Chemical, Biological, Radiological, Nuclear, and high-yield Explosive (CBRNE) Consequence Management operations and when directed, establishes command and control of DoD forces for a CBRNE incident to assist local authorities in saving lives, preventing injury, and providing temporary critical life support





USNORTHCOM Missions





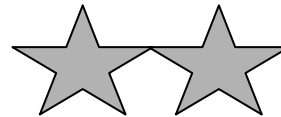
USNORTHCOM CBRNE CM

Tiered Response Options

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SCOPE OF DOD RESPONSE



Tier I

Defense Coordinating Officer
or other O-6 Commander

- DCO with DCE and EPLOs in National Response Plan role
- JPAC from JTF-CS

Tier II

- JTF-CS
 - with technical augmentation
- JTF-CM (X2 if required)
 - Command and Control Headquarters 2 HQ(-)(ARNORTH)
 - Joint Planning Augmentation Cell (JTF-CS)
 - Joint Manning Document augmentation required

DCO, DCE and EPLOs continue National Response Plan role

Tier III

USNORTHCOM Assigned O-9 level JTF Headquarters

Complex regional problem with multiple subordinate C2 elements

- JTF-CS
- JTF-CM
- MACDIS or Other JTFs

Formed from:

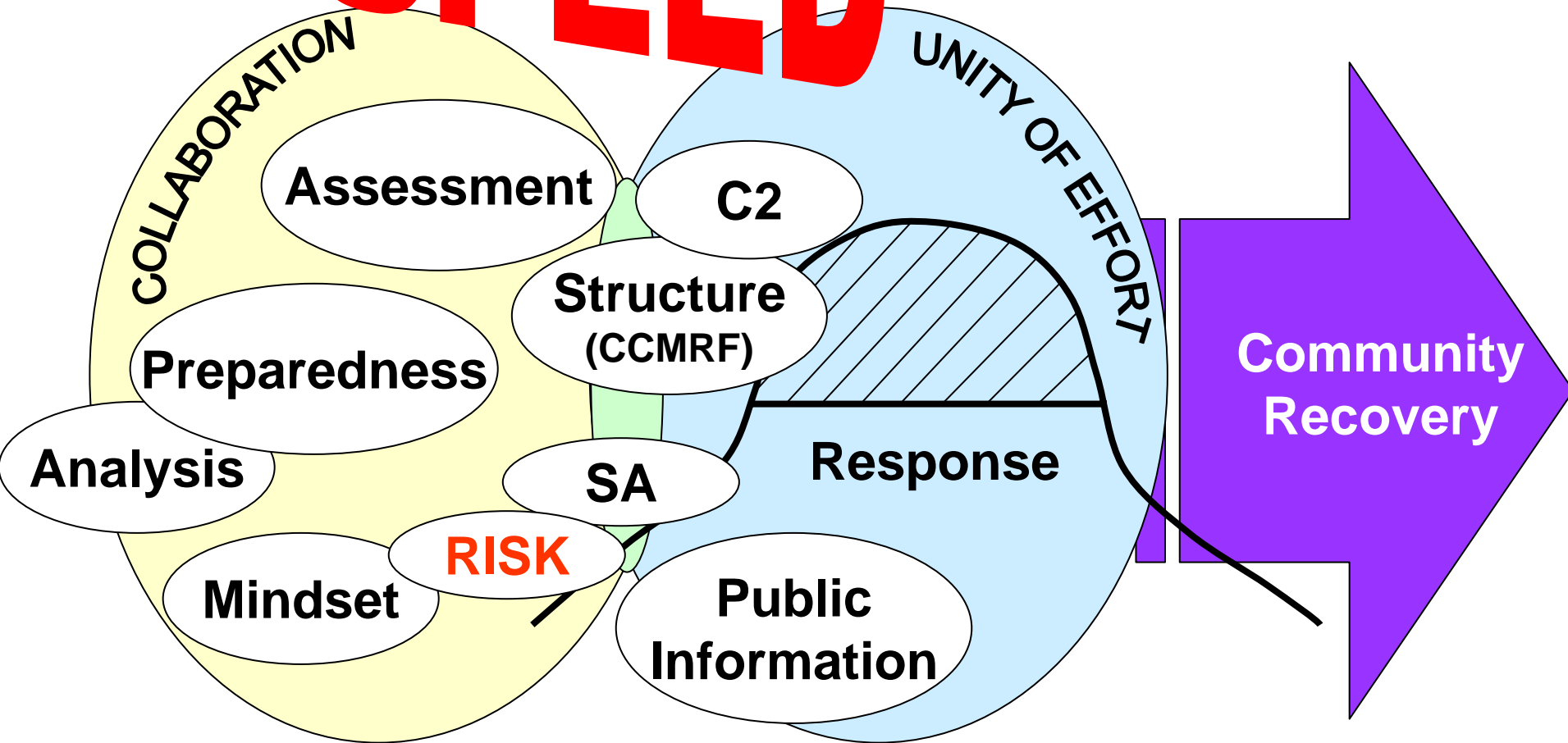
- Standing Joint Force Headquarters- North (SJFHQ-N)
- ARNORTH (with joint augmentation from SJFHQ-N)
- Force Provider resources

DCO, DCE and EPLOs continue National Response Plan role

Command and Control

CJTFCS Center of Gravity

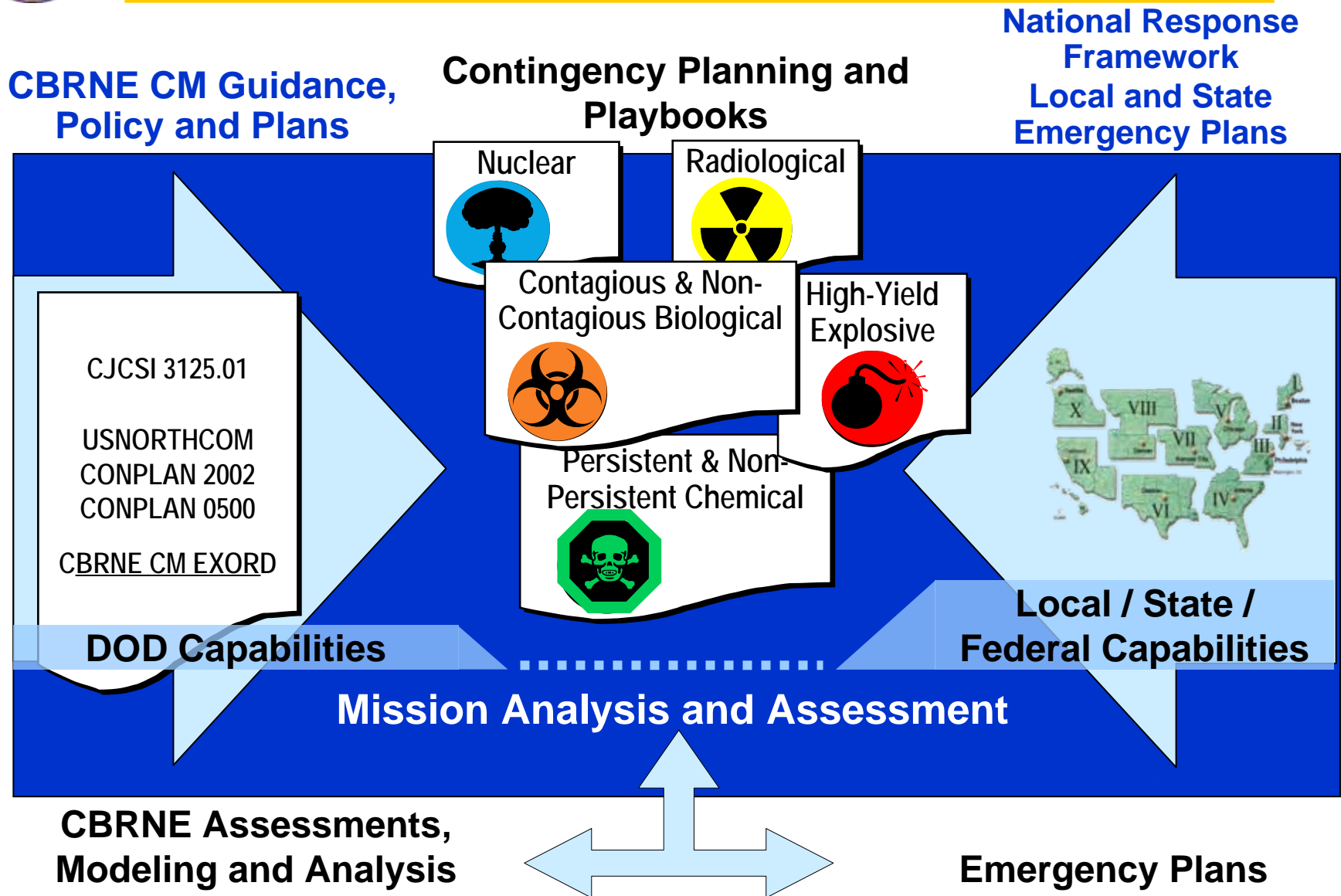
SPEED



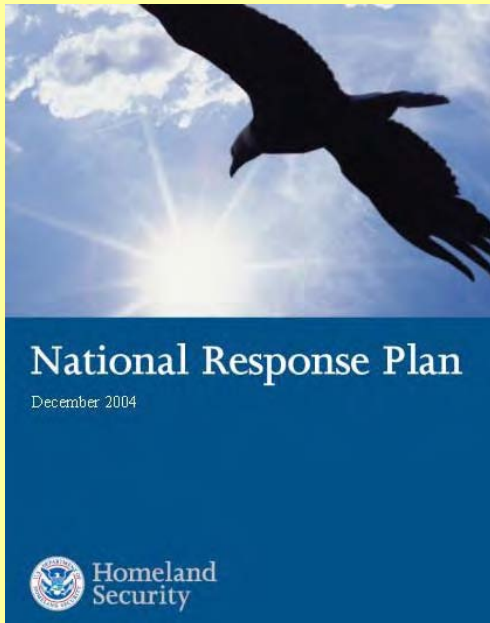
LAW / POLICY / REGULATION / PROCESS



Deliberate Planning



Capability Requirements Analysis



- NRP identifies DOD support **functions**.
- Mission analysis determines specified and implied **tasks**.

15 PLANNING SCENARIOS

Created for Use in National, Federal, State, and Local Homeland Security Preparedness Activities

The Homeland Security Council

February 2006

CBRNE CM Scenarios

- 1: Nuclear Detonation – 10-Kiloton Improvised Nuclear Device
- 2: Biological Attack – Aerosol Anthrax
- 3: Biological Disease Outbreak – Pandemic Influenza
- 4: Biological Attack – Plague
- 5: Chemical Attack – Blister Agent
- 6: Chemical Attack – Toxic Industrial Chemicals
- 7: Chemical Attack – Nerve Agent
- 8: Chemical Attack – Chlorine Tank Explosion
- 11: Radiological Attack – Radiological Dispersal Devices

Scenarios highlight the **scope**, range, and **complexity** of catastrophic incidents

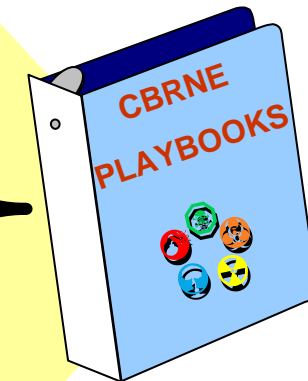
Tasks

The **Universal Task List (UTL)** is a menu of tasks that may be performed in major events such as those detailed in the National Planning Scenarios.

Capabilities

The **Target Capabilities List (TCL)** describes specific capabilities (and levels of capability) that federal, State, local, and tribal entities are expected to develop and maintain.

UTL and TCL link tasks to **capability** requirements



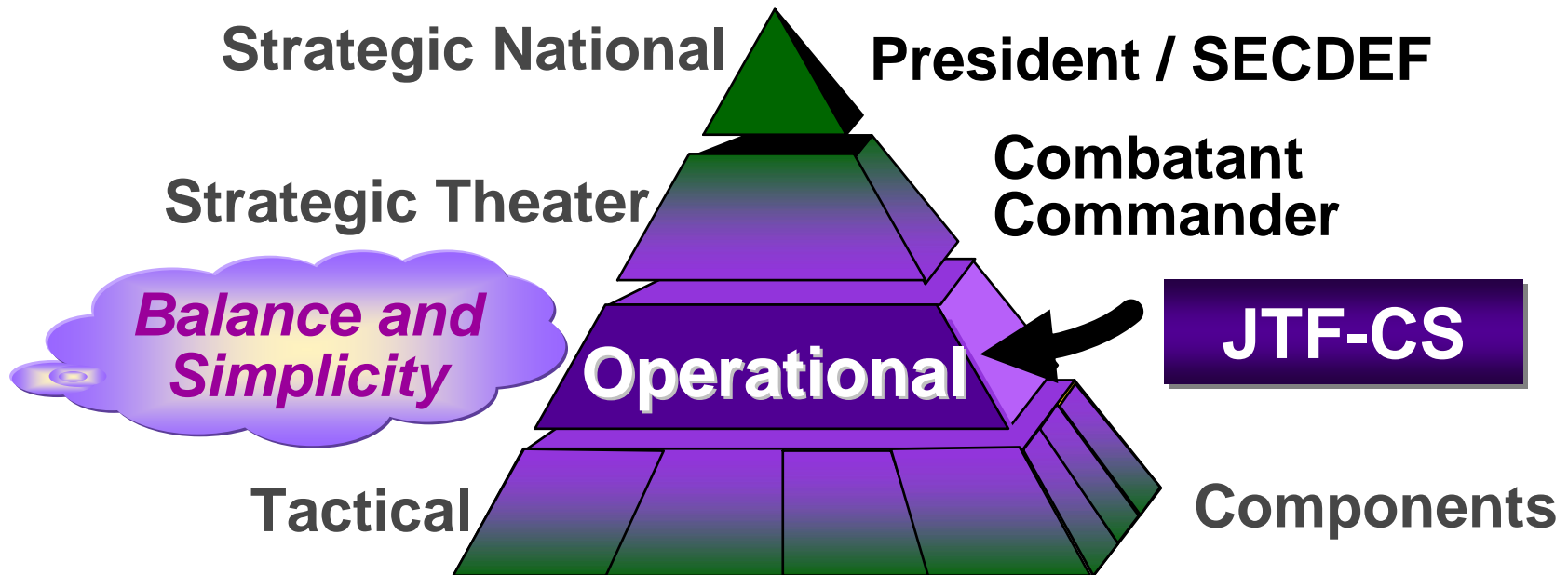
Playbooks **quantify** the DOD support estimates

Playbooks are scenario-based

Bridge the NRP specified and implied support tasks to DOD capabilities
Analyze CBRNE CM resource requirements based on anticipated tasks



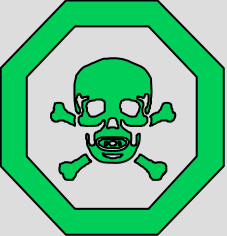

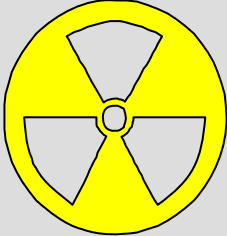

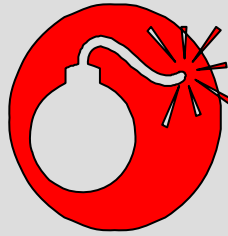









Focus of CBRNE Playbooks



Setting the conditions for subordinate success.



Playbook Status

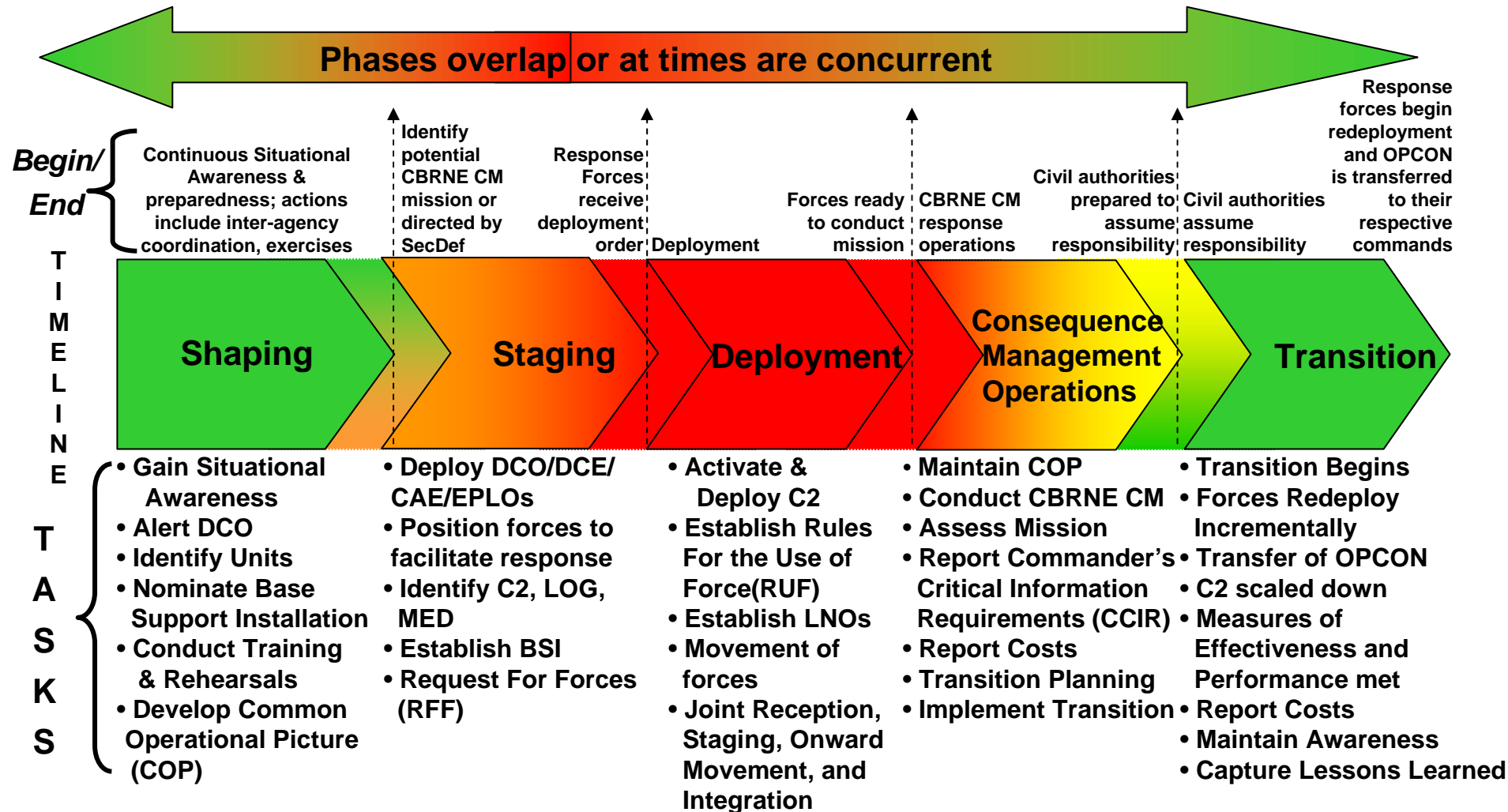
C	B	R	N	E
				
Scenarios #5-8	Scenarios #2-4	Scenarios #11	Scenarios #1	Scenarios #12
Persistent  TIC/TIM  Non-Persistent 	Aerosol Anthrax  PI  Plague 	RDD 	NUKE Det 	HYE  (Branch Plan)

GREEN: Playbook constructed; exercised internally (PLANEX); exercised externally. Viable planning tool.

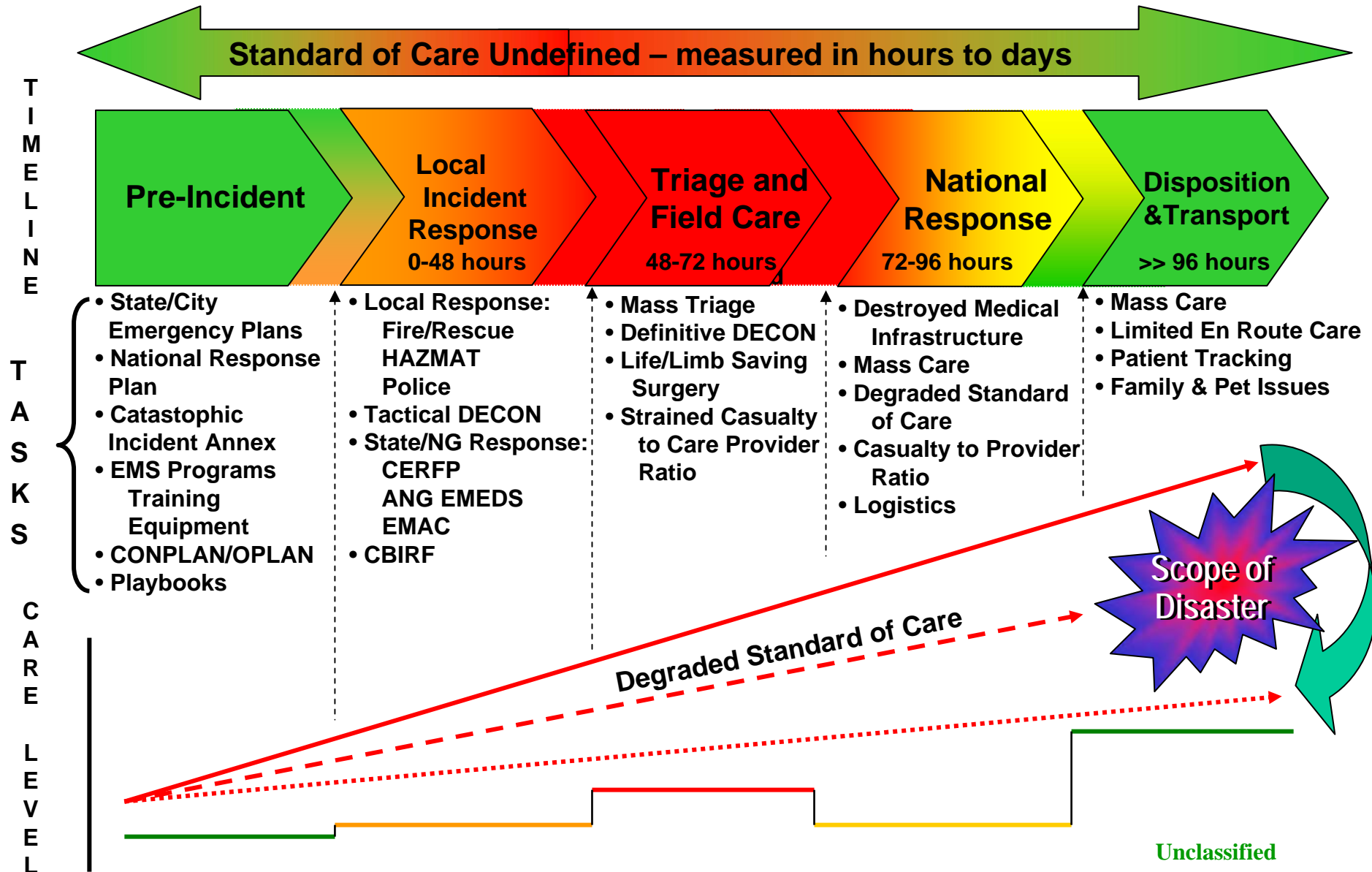
AMBER: Requires further refinement. Not fully exercised.

RED: Not developed.

Operational Phases



Disaster Response Phases





HSS Response Timelines

Based upon NRP Catastrophic Incident Supplement

Total Deployed Non-DoD Force:

14 DMATs w/ equipment sets

NMRT

2 VMATs

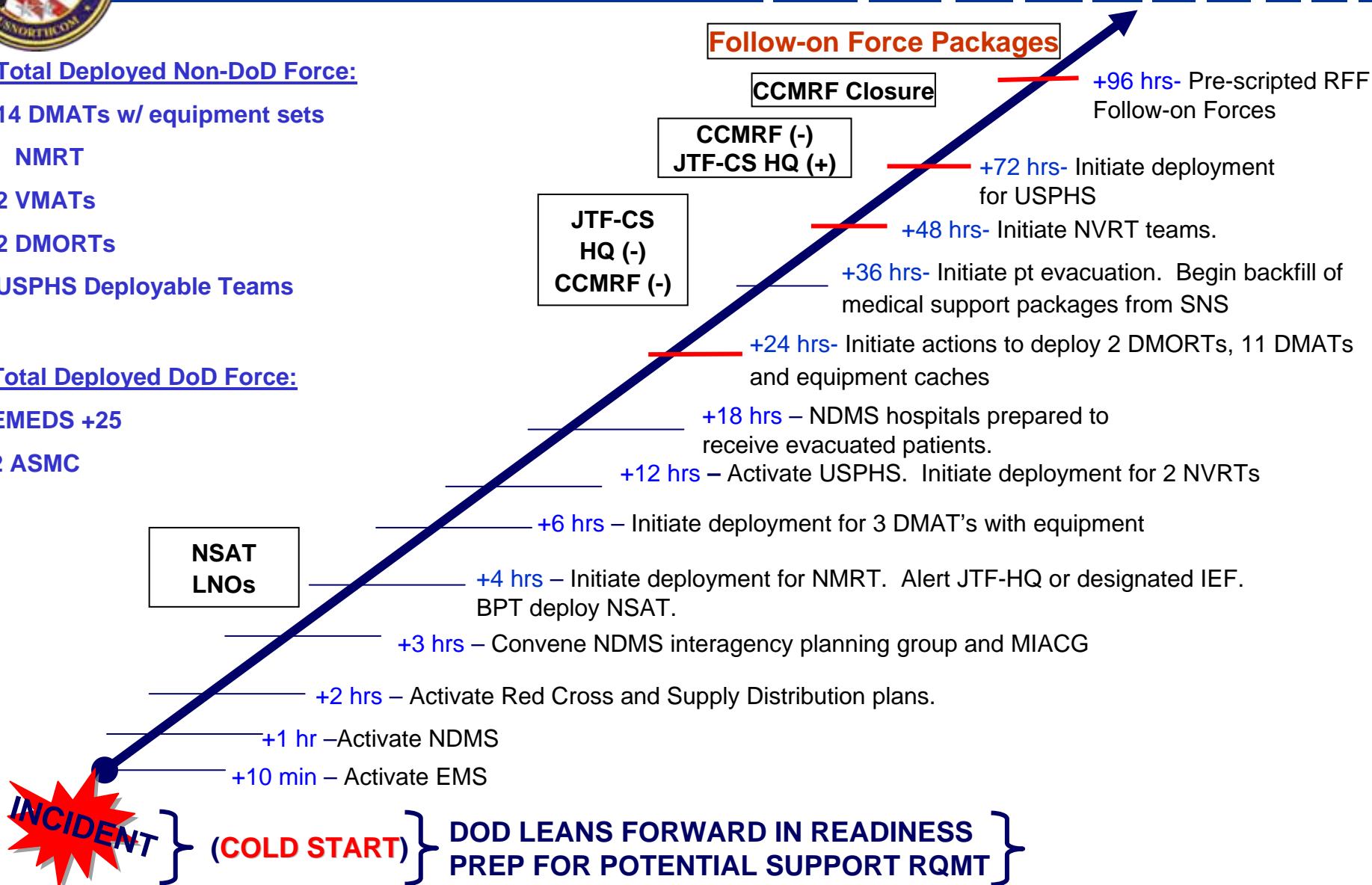
2 DMORTs

USPHS Deployable Teams

Total Deployed DoD Force:

EMEDS +25

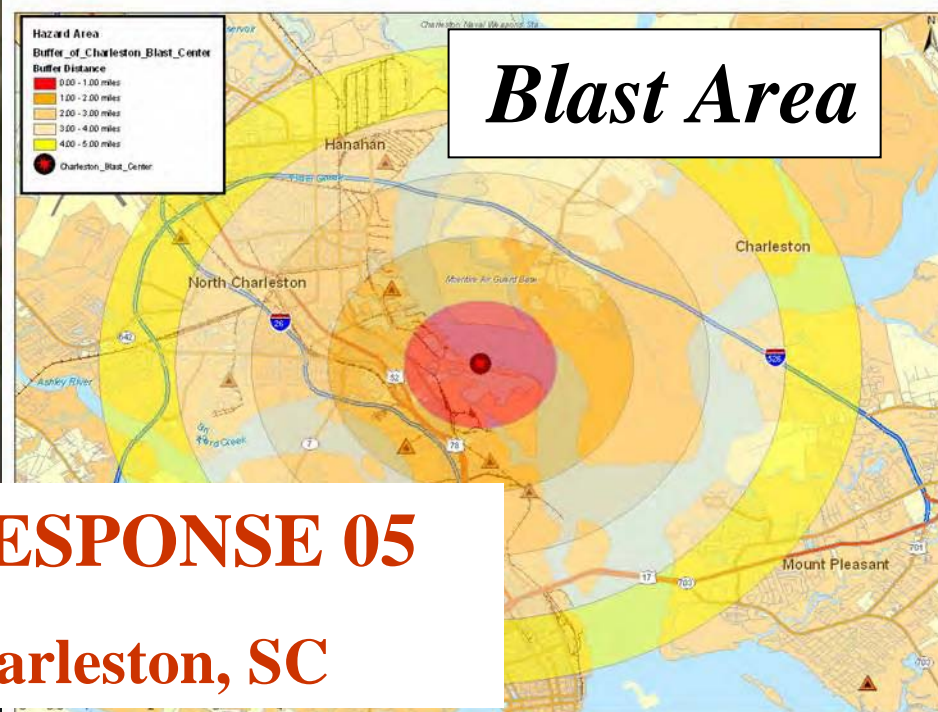
2 ASMC



Terrain



Blast Area



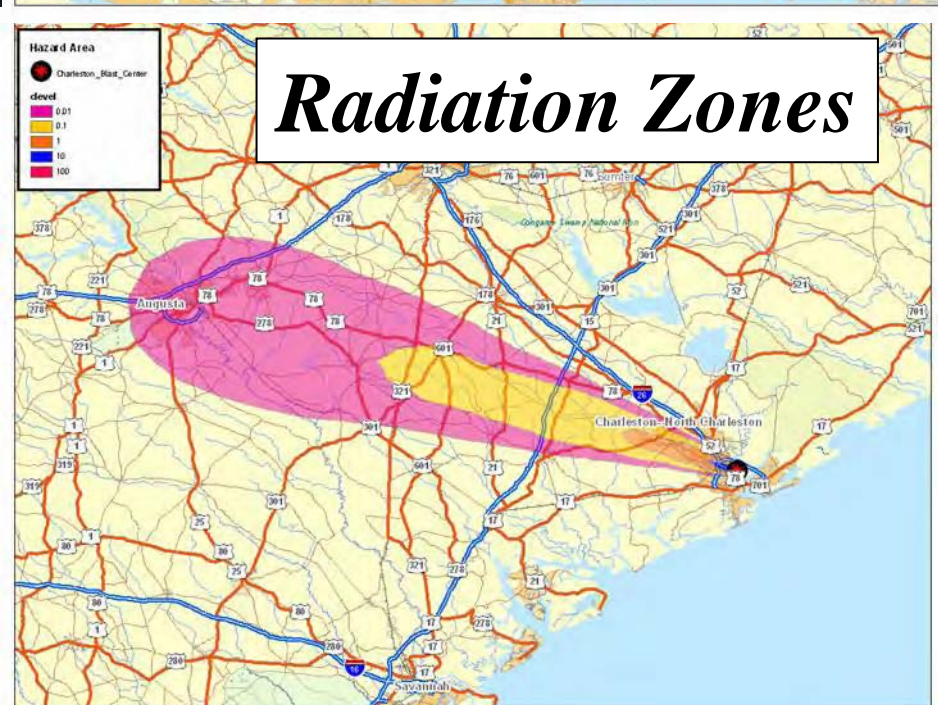
SUDDEN RESPONSE 05

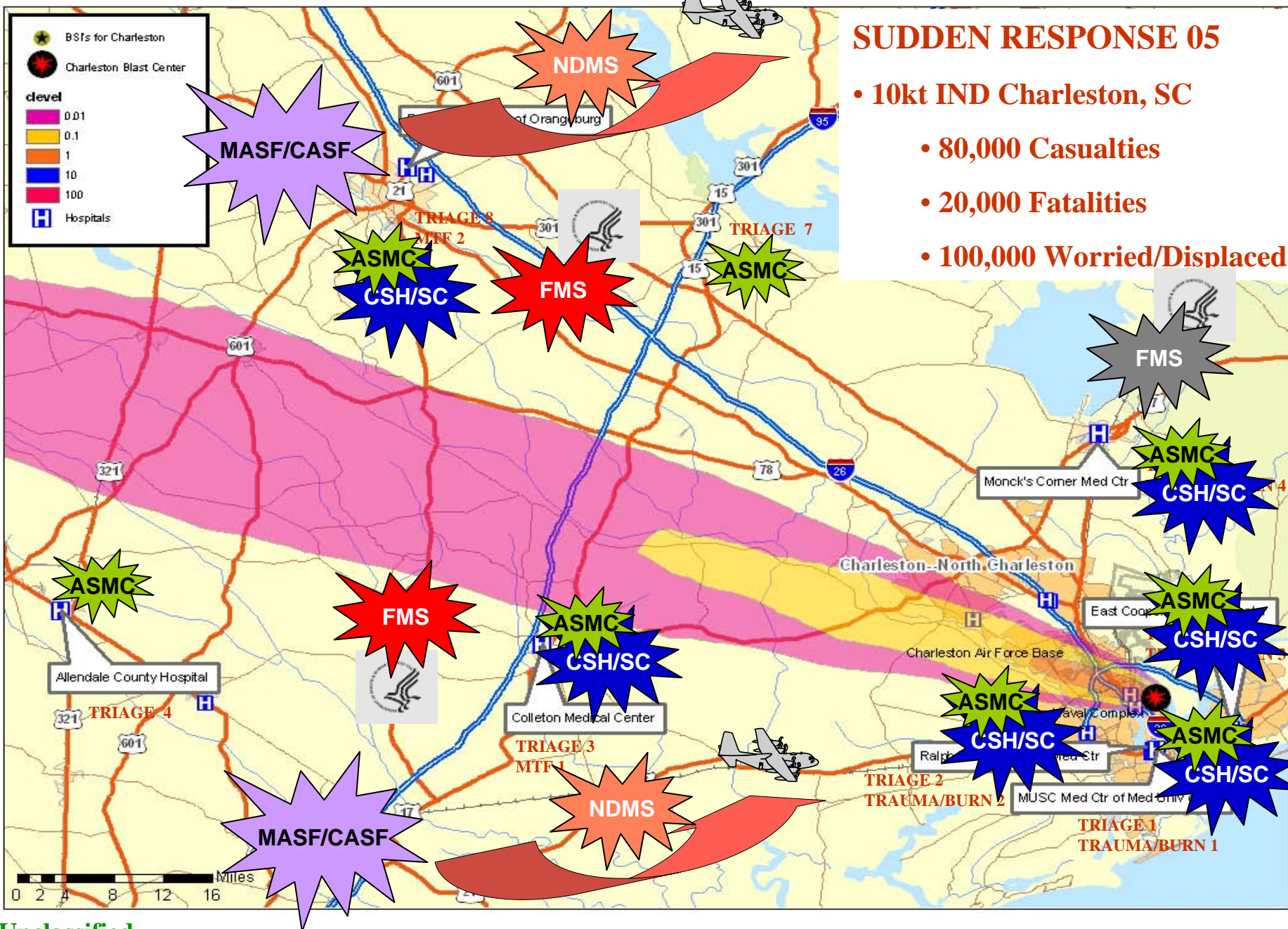
- 10kt IND Charleston, SC

Thermal Zones

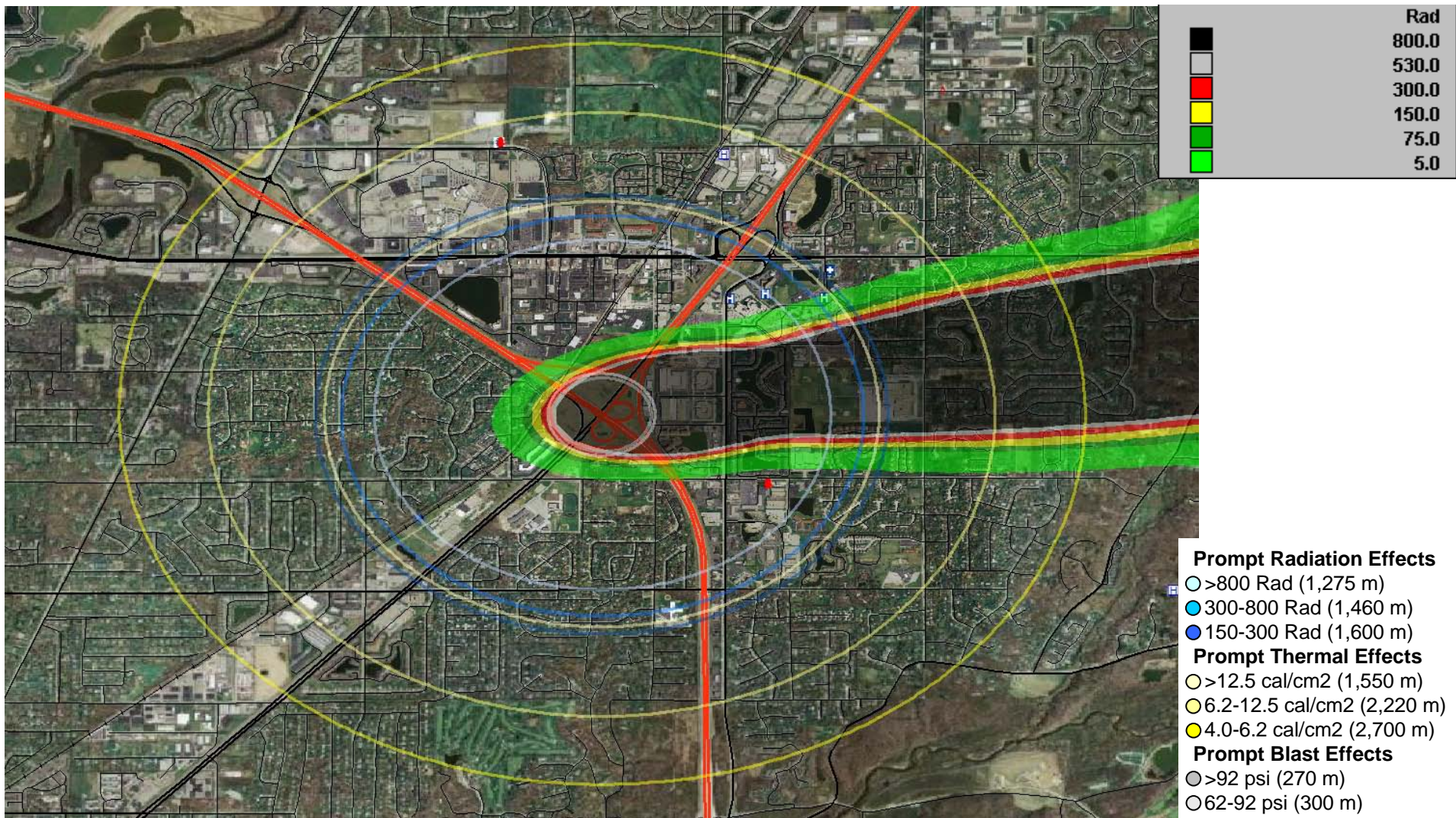


Radiation Zones

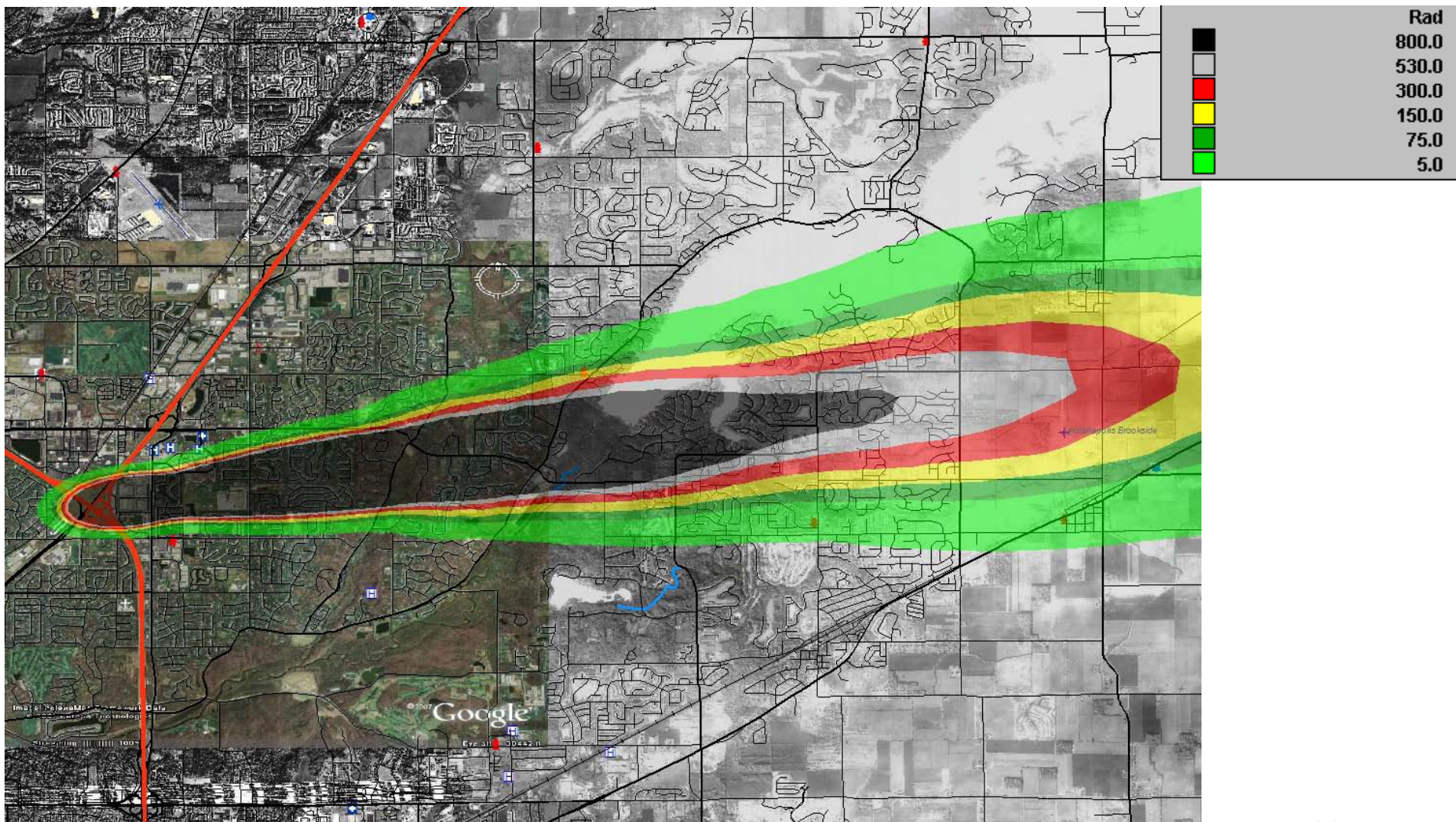




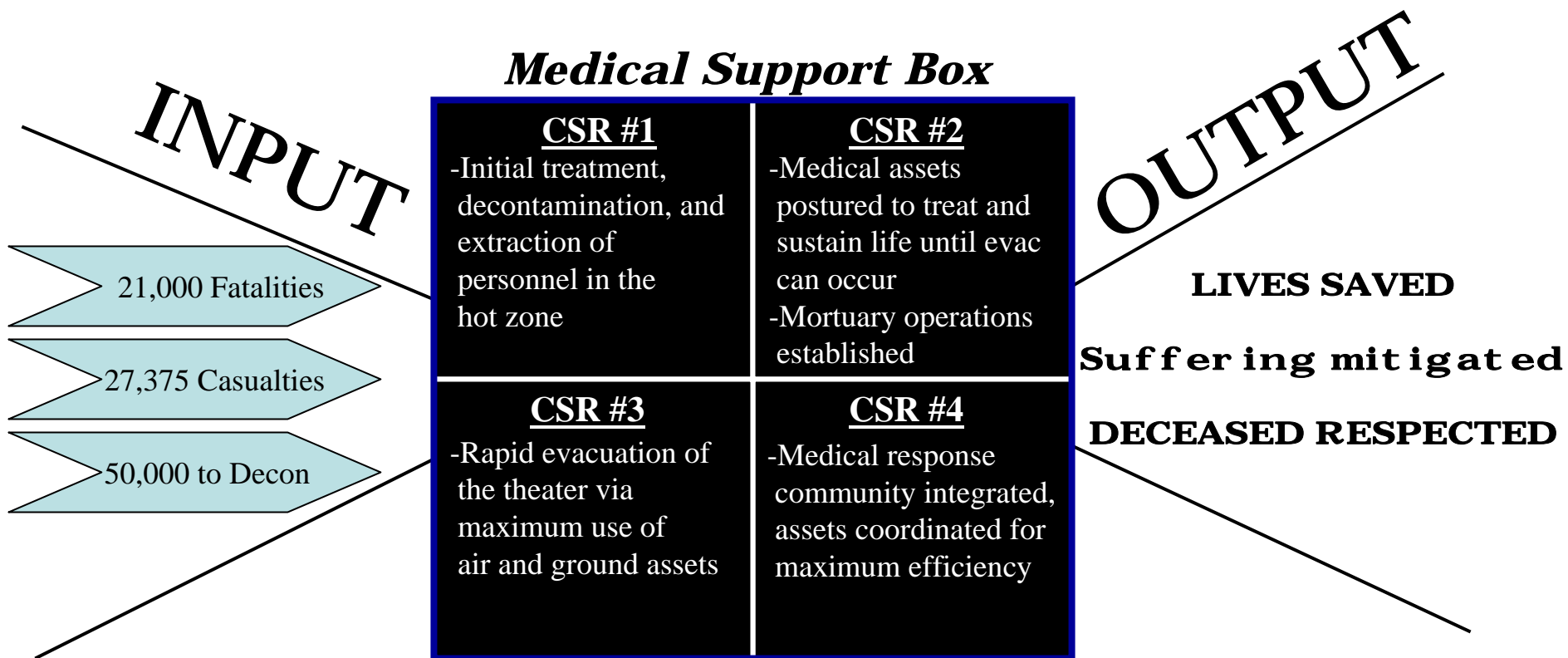
Combined Prompt Effects



Integrated Dose 12, 24, 36, 48 hrs, 3, 4, 5 days



HOW DO WE ACHIEVE SUCCESS?



STATUS		<u>THE “BIG 6”</u>
		Collection/TX/Decon system established to support hot zone
		TX facilities established for continuing care and stabilization
		Civilian hospitals evacuated, focused on treating critically ill
		Evacuation staging areas operational
		Airhead operating at maximum output
		Maximum evacuation occurring via ground routes

Casualty Management – CPG

CCMRF CDR Conference Aug 2007

Joint Theatre Trauma System (JTTS)

Clinical Practice Guidelines (CPG):

- ✓ Damage Control Resuscitation
- ✓ Use of Recombinant Factor VIIa (rFVIIa)
- ✓ Blunt Abdominal Trauma
- ✓ Urologic Trauma
- ✓ Deep Venous Thrombosis
- ✓ EMT Thoracotomy
- ✓ Trauma Airway Management
- ✓ Traumatic Brain Injury (TBI) and Military Acute Concussion Evaluation (MACE)
- ✓ Irrigation of War Wounds
- ✓ Hypothermia
- ✓ Vascular Injury
- ✓ Pelvic Fracture
- ✓ Burn
- ✓ Transport - Transfer

Guideline Only – not a substitute for clinical judgment and subject to overriding operational considerations



BLUF

JTF-CS Operational Risk Assessment

Medium

Minimal Risk Assessment

Low

≤ 10 cGy Risk Assessment

Low

≤ 25 cGy Risk Assessment

Medium

Unclassified



Risk Assessment

Ops	Hazard	Risk	Control	Risk
Minimal	IDENTIFIED	M	IDENTIFIED & IMPLEMENTED	L
≤ 10 cGy		E		L
< 25 cGy		E		M



Acute and Latent Medical Effects

Dose (rads)	Acute Death (no treatment)	Acute Death (w/treatment)	Acute Symptoms (within 4 hours)	Excess Lifetime Cancer Risk
1	0 %	0 %	0 %	0.08 %
10	0 %	0 %	0 %	0.8 %
50	0 %	0 %	0 %	4 %
100	<5 %	0 %	5 - 30 %	8 %
150	<5 %	<5 %	40 %	12 %
200	5 %	<5 %	60 %	16 %
300	30 - 50 %	15 - 30 %	75 %	24 %
600	95 -100 %	50 %	100 %	>40 %
1000	100 %	>90 %	100 %	>50 %



Revision First Draft JP 3-11 (Aug 07)

JTF-CS Operational Risk Assessment

High?

Mission Importance	Critical	Priority	Routine
Acceptable Risk level			
Extremely High	125	75	25
High	75	25	5
Moderate	25	5	0.5
Low	5	0.5	0.1



Proposed Revision to First Draft JP 3-11

JTF-CS Operational Risk Assessment

Medium

Personal Radiological Monitoring Program

<u>Cumulative dose</u>	<u>RES Category</u>	<u>Risk Levels</u>
0 to 0.05 cGy	0	No Risk
0.05 to 0.5 cGy	1A	Normal
0.5 TO 5 cGy	1B	Minimal
5 to 10 cGy	1C	Limited
10 to 25 cGy	1D	Increased
25 to 75 cGy	1E	Significant
75 or more cGy	2	N/A

Mission Importance	Critical	Priority	Routine
Acceptable Risk level			
Extremely High	125	75	25
High	75	25	10
Moderate	25	10	5
Low	10	5	0.5



Proposed Revision to First Draft JP 3-11

JTF-CS Operational Risk Assessment

Medium

Personal Radiological Monitoring Program

<u>Cumulative dose</u>	<u>RES Category</u>	<u>Risk Levels</u>
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10 to 25 cGy	1D	Increased
25 to 75 cGy	1E	Significant
75 or more cGy	2	N/A

Mission Importance	Critical	Priority	Routine
Acceptable Risk level			
Extremely High	2	1E	1D
High	1E	1D	1C
Moderate	1D	1C	1B
Low	1C	1B	1A

Unclassified

© 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680,

The Preventive Defense Project
Harvard and Stanford Universities
Ashton B. Carter and William J. Perry, Co-Directors

The map shows the study area (red area) located near the intersection of Highway 101 and Highway 102. The area is bounded by Highway 101 to the north and Highway 102 to the east. The study site is located within the red area. The map includes a scale bar and a north arrow.

Source: Lawrence Livermore National Laboratory.⁸



The Day After

➤ ***PREVENTION VERSUS RESPONSE***

- ✓ Prevention remains by far the best protection against nuclear terrorism

➤ ***FEDERAL GOVERNMENT PLANNING***

- ✓ The federal government should stop pretending that state and local officials will be able to control the situation on the Day After

➤ ***SHORT-TERM SHELTERING VERSUS PROMPT EVACUATION.***

- ✓ Fallout shelters deserve a comeback

➤ ***LONG-TERM RADIATION EXPOSURE***

- ✓ A sensible approach to response, recovery, rebuilding, and decontamination after a nuclear detonation will require emergency responders and some citizens in the affected area to accept a greater exposure to radiation than is permitted by normal day-to-day occupational guidelines.



The Day After

➤ ***FOLLOW-ON ATTACK***

- ✓ If one nuclear weapon goes off, there are likely to be more to follow: the response plan for the Day After should assume follow-on attacks

➤ ***RETALIATION AND DETERRENCE***

- ✓ *The source of the weapon or material detonated by a non-governmental terrorist group will eventually be traced back to a government – Russia, Pakistan, another foreign source, or even the United States*

➤ **CONTINUITY OF THE AMERICAN FORM OF GOVERNMENT.**



QUESTIONS

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JOINT TASK FORCE CIVIL SUPPORT



To Serve and Support